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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER	
RIDLEY,B	
ART UNIT	PAPER NUMBER
1764	12

DATE MAILED: 04/20/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/384,082	Applicant(s) OTOMO ET AL.	
	Examiner Basia A Ridley BR	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *16-32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☒ Claim(s) *2-9 and 11-15* is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☒ The proposed drawing correction filed on *06 February 2001* is: a)☒ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner. by examiner

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other: .

DETAILED ACTION

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 6 February 2001, have been approved by the examiner.

Claim Objections

2. Claim(s) 2-9 and 11-15 is/are objected to because of the following informalities:

- claim(s) 2 and 15 recite(s) "said high-temperature section" for claim language consistency, suggested correction is --said at least one high-temperature section--;
- claim(s) 7, 11 and 14 recite(s) "high temperature section" for claim language consistency, suggested correction is --high-temperature section--.

Appropriate correction is required. Applicant is reminded that no new matter shall be added.

Claim Rejections - 35 USC § 112

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claim(s) 5-9 and 13 is/are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant(s) regard(s) as the invention. Claim(s) 1-15 is/are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant(s) regard(s) as the invention.

Claim(s) 5 recite(s) the limitation(s) "nitrogen gas", line(s) 2. Said claim(s) is/are indefinite as it is not clear what is the difference between said nitrogen gas and nitrogen gas recited in line(s) 3

of claim 4. Suggested correction is to replace nitrogen gas in line(s) 2 of claim(s) 5 with --the nitrogen gas--.

Claim(s) 6 recite(s) the limitation(s) "the nitrogen gas" and "said nitrogen gas", line(s) 1 and 2-3, respectively. There is insufficient antecedent basis for said limitation(s) in the claim(s) as more than one nitrogen gas is recited prior to said limitation(s) (e.g. line(s) 3 of claim 4 and in line(s) 2 of claim 5).

Claim(s) 9 recite(s) the limitation(s) "the flow rate of pressurized air", line(s) 4. There is insufficient antecedent basis for said limitation(s) in the claim(s).

Claim(s) 9 recite(s) the limitation(s) "controller for controlling the flow rate of pressurized air from an air compressor supplied to said gasification substance producing unit (...)", line(s) 4-6. Said claim(s) is/are indefinite because it is not clear what is meant by said limitation(s). is the air compressor supplied to said gasification substance producing unit?. Suggested correction is -- controller for controlling the flow rate of pressurized air from an air compressor, wherein said pressurized air is supplied to said gasification substance producing unit (...)--.

Claim(s) 13 recite(s) the limitation(s) "nitrogen gas", line(s) 1-2. Said claim(s) is/are indefinite as it is not clear what is the difference between said nitrogen gas and nitrogen gas recited in line(s) 3-4 of claim 12. Suggested correction is to replace nitrogen gas in line(s) 1-2 of claim(s) 13 with --the nitrogen gas--.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claim(s) 1-6, 10-13 and 15 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Jahnke et al. (USP 5,345,756) in view of Rice (USP 4,571,935).

Regarding claim(s) 1, Jahnke et al. disclose(s) a similar integrated coal gasification combined cycle power generator, the generator comprising:

- a coal gasification system for producing a combustible gas from coal, wherein said gasification system supplies said combustible gas to a gas turbine system (C9/L51-C10/L51);
- said gas turbine system comprises a gas turbine for performing expansion work using said combustible gas, wherein said gas turbine supplies exhaust gas to a heat recovery system (C10/L40-51 & C11/L58-63);
- said heat recovery system performs heat exchange, wherein said heat recovery system uses said exhaust gas supplied from said gas turbine as a heat source, and supplies steam generated in the heat exchange to a steam turbine system (C11/L58-C12/L10);
- said steam turbine system performs expansion work (C10/L40-51), said steam turbine system comprising a condenser to condense said steam from said heat recovery system into water, said water being supplied to a heat exchanger in said coal gasification system, where said water is heated to steam (C12/L22-28).

While Jahnke et al. does disclose that said steam created in a heat exchanger in said coal gasification system is further heated by removing waste heat in another stage of the generator (C9/L11-20 and C12/L28-40), the reference does not explicitly disclose said another stage being at least one high-temperature section of the gas turbine system which is at a temperature higher than a temperature of said steam from said heat exchanger.

Rice teaches a combined cycle power generator wherein steam generated by steam turbine system is used to cool at least one high-temperature section of the gas turbine system which is at a temperature higher than a temperature of said steam (Abstract) for the purpose of increasing system

efficiency by providing effective cooling to said gas turbine and at the same time allowing for steam re-heating and recycle to the steam turbine system.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use steam condensed by a condenser in steam turbine system and heated to steam in a heat exchanger in coal gasification system, in power generator of Jahnke et al., to cool at least one high-temperature section of the gas turbine system which is at a temperature higher than the temperature of said steam, as taught by Rice, for the purpose of increasing system efficiency by providing effective cooling to said gas turbine and at the same time allowing for steam re-heating and recycle to the steam turbine system.

Regarding claim(s) 2-3, Jahnke et al. in view of Rice disclose(s) all of the claim limitations as set forth above. Additionally Rice teaches the power generator wherein:

- a higher-temperature steam is produced after cooling said high-temperature section of the gas turbine system with said steam from said heat exchanger, said higher-temperature steam is recovered from said at least one high-temperature section of the gas turbine system and supplied to a steam turbine in said steam turbine system (Abstract); and
- said at least one high-temperature section of the gas turbine is at least one of said gas turbine and a gas turbine combustor (Abstract).

Regarding claim(s) 2-3, Jahnke et al. in view of Rice disclose(s) all of the claim limitations as set forth above. Additionally Jahnke et al. discloses the power generator further comprising:

- a gasification substance producing unit (156) in said coal gasification system for producing an oxygen gas (160) and a nitrogen gas (154) from air (155), said gasification substance producing unit (156) supplying said oxygen gas (160) to a coal gasification unit (1) in said coal gasification system;

- wherein said coal gasification unit (1) receives said oxygen gas (160) from said gasification substance producing unit (156) and receives coal (7);
- said coal gasification unit (1) burns the coal (7) with the oxygen gas (160) from said gasification substance supplying unit (156), producing said combustible gas and introducing said combustible gas into a cooling unit in said coal gasification system (C9/L51-C10/L51);
- said cooling unit cools said combustible gas from said coal gasification unit (1), said cooling unit being in fluid connection with a gas cleanup unit in said coal gasification system (C9/L51-C10/L51); and
- said gas cleanup unit removes impurities from said combustible gas (C9/L51-C10/L51).

While Jahnke et al. does not explicitly disclose said coal gasification unit receiving coal from a coal supplying unit, a usage of a coal supplying unit is inherent in the disclosed power generator.

Regarding claim(s) 5, Jahnke et al. in view of Rice disclose(s) all of the claim(s) limitations as set forth above. Additionally Jahnke et al. discloses the power generator wherein:

- wherein said coal supplying unit employs nitrogen gas (C4/L5-18).

While Jahnke et al. does not explicitly disclose said nitrogen gas employed in said coal supplying unit originating from said gasification substance producing unit, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use at least part of nitrogen gas form said gasification substance producing unit in said coal supplying unit for the purpose of improving system economic by utilizing as a temperature moderator a gas stream which is available as a by-product of disclosed generator.

Regarding claim(s) 6, Jahnke et al. in view of Rice disclose(s) all of the claim(s) limitations as set forth above. Additionally Jahnke et al. discloses the power generator wherein:

- the nitrogen gas produced in said gasification substance producing unit is supplied to said gas turbine combustor, said nitrogen gas combined therein with said combustible gas (C11/L33-41).

Regarding claim(s) 10-11, Jahnke et al. in view of Rice disclose(s) all of the claim(s) limitations as set forth above. Additionally Rice teaches the power generator wherein:

- a higher-temperature steam is produced after cooling said at least one high-temperature section of the gas turbine system with said steam from said heat exchanger (Abstract); and
- said at least one high-temperature section of the gas turbine is at least one of said gas turbine and a gas turbine combustor (Abstract).

While Rice does not explicitly disclose higher-temperature steam being supplied to a heat recovery system, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use at least part of said higher-temperature steam in said heat recovery system for the purpose of improving system economic by utilizing a higher-temperature steam which is available as a by-product of disclosed generator for production of steam which can be used in high pressure steam turbine.

Regarding claim(s) 12, Jahnke et al. in view of Rice disclose(s) all of the claim(s) limitations as set forth above. Additionally Jahnke et al. discloses the power generator further comprising:

- a gasification substance producing unit (156) in said coal gasification system for producing an oxygen gas (160) and a nitrogen gas (154) from air (155), said gasification substance producing unit (156) supplying said oxygen gas (160) to a coal gasification unit (1) in said coal gasification system;
- wherein said coal gasification unit (1) receives said oxygen gas (160) from said gasification substance producing unit (156) and receives coal (7);

- said coal gasification unit (1) burns the coal (7) with the oxygen gas (160) from said gasification substance supplying unit (156), producing said combustible gas and introducing said combustible gas into a cooling unit in said coal gasification system (C9/L51-C10/L51);
- said cooling unit cools said combustible gas from said coal gasification unit (1), said cooling unit being in fluid connection with a gas cleanup unit in said coal gasification system (C9/L51-C10/L51); and
- said gas cleanup unit removes impurities from said combustible gas (C9/L51-C10/L51).

While Jahnke et al. does not explicitly disclose said coal gasification unit receiving coal from a coal supplying unit, a usage of a coal supplying unit is inherent in the disclosed power generator.

Regarding claim(s) 13, Jahnke et al. in view of Rice disclose(s) all of the claim(s) limitations as set forth above. Additionally Jahnke et al. discloses the power generator wherein:

- wherein said coal supplying unit employs nitrogen gas (C4/L5-18).

While Jahnke et al. does not explicitly disclose said nitrogen gas employed in said coal supplying unit originating from said gasification substance producing unit, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use at least part of nitrogen gas form said gasification substance producing unit in said coal supplying unit for the purpose of improving system economic by utilizing as a temperature moderator a gas stream which is available as a by-product of disclosed generator.

Regarding claim(s) 15, Jahnke et al. in view of Rice disclose(s) all of the claim(s) limitations as set forth above. Additionally Jahnke et al. discloses the power generator wherein:

- said higher temperature steam is supplied to said heat recovery system and to said steam turbine (C11/L58-C12/L10).

7. Claim(s) 7 and 14is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Jahnke et al. (USP 5,345,756) in view of Rice (USP 4,571,935), as applied to claim(s) 1-6, 10-13 and 15 above, and further in view of Perkins et al. (USP 5,160,096).

Regarding claim(s) 7 and 14, Jahnke et al. in view of Rice disclose(s) all of the claim(s) limitations as set forth above, but the reference(s) do/does not disclose gas turbine system comprising an air compressor that supplies air to at least one high-temperature section of the gas turbine system for the purpose of cooling said high-temperature section, producing a higher-temperature air nor said higher-temperature air being recovered after cooling said high-temperature section and supplied to said heat recovery system.

Perkins et al. teaches a gas turbine system comprising at least one air compressor that supplies air to at least one high-temperature section of the gas turbine system for the purpose of cooling said high-temperature section and producing a higher-temperature air (C2/53-61) for the purpose of improving system performance by allowing significant increase in the gas turbine inlet temperature.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use at least one air compressor that supplies air to at least one high-temperature section of the gas turbine system for the purpose of cooling said high-temperature section and producing a higher-temperature air, as taught by Perkins et al., in the power generator of Jahnke et al., for the purpose of improving system performance by allowing significant increase in the gas turbine inlet temperature.

While Perkins et al. does not explicitly disclose said higher-temperature air being supplied to a heat recovery system, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use at least part of said higher-temperature air in a heat recovery

system of Jahnke et al., as Jahnke et al. discloses utilizing hot gas streams available as a by-product of disclosed generator for the purpose of improving system economics (C11/58-63).

8. Claim(s) 8-9 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Jahnke et al. (USP 5,345,756) in view of Rice (USP 4,571,935), as applied to claim(s) 1-6, 10-13 and 15 above, and further in view of Iwata et al. (USP 5,327,718).

Regarding claim(s) 8-9, Jahnke et al. in view of Rice disclose(s) all of the claim(s) limitations as set forth above, but the reference(s) do/does not disclose power generator further comprising detector for detecting a calorific value of said combustible gas from said gas cleanup unit nor a controller for controlling the flow rate of said combustible gas and/or high pressure air from an air compressor based on said calorific value.

Iwata et al. teaches a gas turbine system comprising a detector for detecting a calorific value of combustible gas and a controller for controlling the flow rate of said combustible gas and/or air supplied to combustor based on said calorific value (C3/L32-48) for the purpose of improving combustor combustion efficiency and lowering NOx production (C3/L60-64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a detector for detecting a calorific value of combustible gas and a controller for controlling the flow rate of said combustible gas and/or air supplied to combustor based on said calorific value, as taught by Iwata et al., in the power generator of Jahnke et al., for the purpose of improving combustor combustion efficiency and lowering NOx production.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and

invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Response to Arguments

10. Applicant's arguments filed 6 February 2001 have been fully considered but they are not persuasive.

11. The applicant argues that Jahnke et al. fails to disclose that water from condenser in steam turbine system is supplied to a heat exchanger in a coal gasification system where it is heated into steam, and wherein said steam is supplied to at least one high-temperature section of a gas turbine system which is at temperature higher than temperature of said steam from said heat exchanger.

This is not found persuasive, because, contrary to applicant's arguments, Jahnke et al. does, in fact, disclose steam turbine system comprising a condenser (198) to condense steam (197) from said heat recovery system (181) into water (201), said water (201) being supplied to a heat exchanger (103) in said coal gasification system, where said water (201) is heated to steam (202). Also see C9/L11-20 and C12/L22-28, where Jahnke et al. disclose that said water (201) is heated to temperature in the range of about 90°F to 350°F, and it is well known in the art that at least water heated to temperature of 350°F turns to steam. Additionally, Jahnke et al. discloses that said steam (202) created in said heat exchanger (103) in said coal gasification system is further heated by removing waste heat in another stage of the generator (C9/L11-20 and C12/L28-40).

Further, the examiner notes that the examiner has not relied on Jahnke et al. to teach steam is supplied to at least one high-temperature section of a gas turbine system which is at temperature higher than temperature of said steam from said heat exchanger.

The examiner has, however, relied on Rice to teach a combined cycle power generator wherein steam generated by steam turbine system is used to cool at least one high-temperature section of the gas turbine system which is at a temperature higher than a temperature of said steam (Abstract) for the purpose of increasing system efficiency by providing effective cooling to said gas turbine and at the same time allowing for steam re-heating and recycle to the steam turbine system.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use steam condensed by a condenser in steam turbine system and heated to steam in a heat exchanger in coal gasification system, in power generator of Jahnke et al., to cool at least one high-temperature section of the gas turbine system which is at a temperature higher than the temperature of said steam, as taught by Rice, for the purpose of increasing system efficiency by providing effective cooling to said gas turbine and at the same time allowing for steam re-heating and recycle to the steam turbine system.

12. The applicant argues that Rice does not disclose that a steam generated by a heat exchange in a coal gasification system is supplied to a high temperature section of a gas turbine system, and further that the reference does not teach that water from a condenser in the steam turbine system is supplied to a heat exchanger in a coal gasification system, where the water is heated to steam.

This is not found persuasive, because the examiner has not relied on Rice to teach that steam from a steam turbine system (i.e. steam originating in said steam turbine system) is condensed to water in a condenser in said steam turbine system and is supplied to a heat exchanger in a coal gasification system where it is heated into steam before it is used to remove waste heat in another stage of the generator.

The examiner has, however relied on Jahnke et al, to teach that steam from a steam turbine system (i.e. steam originating in said steam turbine system) is condensed to water in a condenser in

said steam turbine system and is supplied to a heat exchanger in a coal gasification system where it is heated into steam before it is used to remove waste heat in another stage of the generator, as set forth above.

The examiner has relied on the disclosure of Rice to merely teach it was well known in the art at the time the invention was made to use steam originating in a steam turbine system to remove waste heat from at least one high-temperature section of a gas turbine system which is at temperature higher than temperature of said steam originating in said steam turbine system (Abstract).

13. The applicant argues that Perkins et al. and Iwata et al. fail to disclose that water from condenser in steam turbine system is supplied to a heat exchanger in a coal gasification system where it is heated into steam, and wherein said steam is supplied to at least one high-temperature section of a gas turbine system which is at temperature higher than temperature of said steam from said heat exchanger.

This is not found persuasive, because the examiner has not relied on Perkins et al. or Iwata et al. to teach that steam from a steam turbine system (i.e. steam originating in said steam turbine system) is condensed to water in a condenser in said steam turbine system and is supplied to a heat exchanger in a coal gasification system where it is heated into steam before it is used to remove waste heat in another stage of the generator.

The examiner has, however relied on Jahnke et al, to teach that steam from a steam turbine system (i.e. steam originating in said steam turbine system) is condensed to water in a condenser in said steam turbine system and is supplied to a heat exchanger in a coal gasification system where it is heated into steam before it is used to remove waste heat in another stage of the generator, as set forth above.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (703) 305-5418. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode, can be reached on (703) 308-4311.

The fax phone number for Group 1700 is (703) 305-3599 (for Official papers after Final), (703) 305-5408 (for other Official papers) and (703) 305-6078 (for Unofficial papers). When filing a fax in Group 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Basia A. Ridley BR
Examiner
Art Unit 1764

BR
April 18, 2001

Hien Tran

HIEN TRAN
PRIMARY EXAMINER